CLMPTO
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1-17. (Cancelled)

18. (Amended) A method of manufacturing a single crystal diamond p-type semiconductor having a thermal conductivity of from about 26-31 W/cm°K and a boron content not exceeding 100 ppm comprising the steps of:

providing a carbonaceous material containing isotopically purified ^{12}C or ^{13}C;

providing a flux containing a nitrogen getter;

adding boron into the carbonaceous material or/and the flux, or around the carbonaceous material and the flux; and

diffusing the carbonaceous material into the flux under a high temperature and pressure to form a boron-doped single crystal diamond p-type semiconductor on a seed crystal diamond.

19. (New) The method of Claim 18, wherein the isotopically purified ^{12}C or ^{13}C has a purity of at least 99.5%.

20. (Cancelled)

21. (New) The method of Claim 18, wherein said carbonaceous material is at least one member selected from the group consisting of pyrolytic carbon, a diamond synthesized by chemical deposition and carbon synthesized by chemical decomposition.

22-32. (Cancelled)